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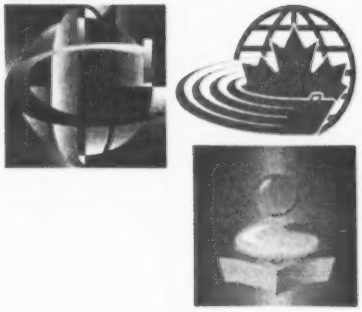
Culture, Tourism and the Centre for Education Statistics

Labour Market Experiences of Youth After Leaving School: Exploring the Effect of Educational Pathways Over Time



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Darcy Hango
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Canada owes the success of its statistical system to a long-standing partnership between Statistics Canada, the citizens of Canada, its businesses, governments and other institutions. Accurate and timely statistical information could not be produced without their continued cooperation and goodwill.

Acronyms

The following acronyms are used in this publication:

ASETS	Access and Support to Education and Training Survey
CEGEP	Collège d'enseignement général et professionnel
NGS	National Graduates Survey
PSE	Post-secondary education
YITS	Youth in Transition Survey

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Chapter 1

Introduction and background literature

Numerous studies have examined educational pathways in Canada over the past several years. Most recently, Doray, Picard, Trottier and Groleau of the Canada Millennium Scholarship Foundation (2009) conceptualized educational pathways from three different paradigms: the selectivity of the education system, the complexity of educational pathways, and finally, in the context of transitioning into adulthood. All three are important conceptual starting points in any analysis of the pathways youth take through the education system. While the selective nature of the system is important in its own right, the latter two conceptual paradigms are of more interest for the current study. For example, there is not a single common path that youth follow through the education system: some youth go directly from high school to the post-secondary system, while others delay, while still others remain out of the post-secondary system entirely. Moreover, at the same time that individuals pass through the education system, they also usually enter one or more phases marking the transition to adulthood. They may be leaving the parental home, starting their own families (having children and/or forming conjugal relationships), as well as entering the workforce, or at least thinking of their employment options once they leave the education system. The role that education plays in this regard therefore is crucial as it impacts the transition to adulthood.

We know that by the mid- to late 20s, much of the educational transition has been completed and a significant majority of these young adults are now in the work force. For instance, using data from YITS, Shaienks and Gluszynski (2009) found that among the cohort of youth aged 18 to 20 years in 2000, approximately 70% of them were not in school and were working full-time as of December 2007, at age 26 to 28 years. Moreover, the 20s are a time of great change and longitudinal data are needed to study important changes and processes. Cooksey and Rindfuss (2001: 733) summarize the processes during this phase of the life course by suggesting that "[b]y the time young men and women reach their middle 20s, they have already experienced diverse life histories, in terms of their family backgrounds and their work, education, marriage, and family formation pathways since leaving high school." Lives are lived not in discrete segments, but simultaneously, and the decisions made to undertake or forgo education can impact upon other facets of life.

One such facet of life is socioeconomic well-being. We know that significant markers of socioeconomic success are employment and earnings all across the life course, including during young adulthood. During young adulthood, individuals have a steep earnings trajectory which is inextricably linked with education (Luong and Hébert 2009). Moreover, the linkage between education and socioeconomic

status over the long run has been well documented. For instance, Chen and Caplan (2003) found both direct and indirect effects of early school failure on socioeconomic well-being in early adulthood.

With regards to education, several factors emerge as pertinent when considering the pathways young people take through the education system. The first involves whether youth have ever dropped out of high school. These individuals can be greatly hampered in the labour market, initially and over the long-term, especially if they never returned to school. We know, for example, the difficulties that those with low education face (Chen and Caplan 2003; de Broucker 2005a,b and Hango and de Broucker 2007; Rumberger and Lamb 2003). They are more likely to be underemployed; if they are employed, they work in very low wage sectors of the economy. Yet, it is important to consider the impact of returning to high school for those who once had dropped out (Looker and Thiessen 2008). These high school leavers may be able to gain some lost ground in the labour market through the eventual completion of a diploma or further training (Hamil-Luker 2005; Rumberger and Lamb 2003). Palameta and Zhang (2006) found for instance that going back to school, or adult education more generally, does pay off in the labour market, but only for those who receive a post-secondary certificate.

A second pertinent factor involves whether youth followed a direct path through the education system or whether they delayed entry to post-secondary education following the completion of high school. There is a growing body of literature that explores the 'gap' year where youth do not go directly to post-secondary studies following completion of a high school diploma. While the 'gap' year is more common in countries such as Australia and the United Kingdom (Heath 2007; Jones 2004), it is also becoming common in Canada (Canadian Council on Learning 2008; Hango 2008). While there is still some debate as to whether taking time off is positive or negative, some past research suggests that 'gappers' are less likely to re-enrol in post-secondary programs and eventually obtain a university degree (Bozik and DeLuca 2005); this in turn could perhaps have longer term implications for their future earnings. Light (1995) for instance found in the United States that individuals who delayed their schooling received wage increases that were smaller than those received by their counterparts who did not delay their schooling. Yet Hango and de Broucker (2007), as well as Dubois (2007) found no significant labour market differences between those who delayed going to a post-secondary program and those who did not. Using the National Graduate Survey, Dubois (2007), in fact, found that college and university graduates who delayed had higher earnings two years after graduation. However, definitional differences plague the research in this area and it is not known whether there is an optimal amount of 'gap' time between high school and post-secondary training.

A third and widely studied aspect of the link between education and the labour market concerns the highest level of education achieved (see Card 1999 for a review of the literature on linking economic factors with educational attainment). The longstanding human capital approach from economics suggests that higher levels of education and the acquisition of knowledge and skills raise the value of an individuals' human capital which in turn is used in the labour market (Becker 1964). Additionally, Blau and Duncan's (1967) status attainment model, which posits that a strong relationship exists between education, occupation and labour market outcomes, has had a long tradition in the sociological literature

(see Kerckhoff, Raudenbush and Glennie 2001, for an example comparing different theoretical approaches). By and large, however, regardless of theoretical approach taken, a consistent finding across Canada and other countries is that individuals with university degrees have the highest rates of return in the labour market (Blundell, Dearden, Sianesi 2005; Ferrer and Riddell 2002; Kerckhoff et al 2001).

Apart from the importance of education in the labour market, numerous other pertinent factors exist. For instance, it is necessary to consider gender due to the different paths through the education system and the different experiences of men and women in the labour market (Bobbitt-Zeher 2007; Frenette and Coulombe 2007). Moreover, place of birth and parental education are also important (Caspi, Wright, Moffitt, and Silva 1998; Ferrer and Riddell 2008), especially given the importance of immigrant adaptation to the host country and the domains of work and education, as well as the influence of parental educational attainment.

In addition, many factors during high school impact upon later education and the labour market; two, in particular, are working during high school and average marks. Previous work has documented the relationship between working in high school and later labour market outcomes (Krahn, Lowe and Lehmann 2002; Leventhal, Graber and Brooks-Gunn 2001; Marsh and Kleitman 2005). On the one hand, it is argued that work experience gained in high school provides youth with valuable lessons on responsibility as well as perhaps signalling to future employers that they are serious, committed and responsible. However, working during high school is at odds with high school completion as it has been linked with low educational outcomes, but only at very high levels (Sunter 1993), while low to moderate levels are actually beneficial (Ruhm 1997). Moreover, academic marks are strongly linked with post-secondary attendance since many programs require a certain minimum average grade level in order for students to be considered for admittance; however, the direct link with later labour outcomes is less clear. Yet, some interesting work from Green and Riddell (2001) found that higher academic ability, as measured by reading and math test scores, is positively associated with future earnings.

Last, several contemporaneous factors present at around the same time as an individual enters or remains in the labour market are also important. Specific factors that affect ones' involvement in the labour force are centered on geographic, family and individual factors. In terms of geography in Canada, the province where one lives impacts upon earnings and employment as not all regional labour markets are the same (Sharan 2000). Moreover, living in areas of different population size can also impact upon labour force status (Vera-Toscano, Phimister, and Weersink 2004). In terms of family factors, the two most important for the labour market are presence of child(ren) in the household and marital status. Children often have a negative impact on labour market participation, especially for women (Zhang 2009), while being married has also been linked with negative labour experiences, albeit through its connection with childbearing. Last, individual characteristics such as a person's age and the presence of a physical or mental condition can affect labour market outcomes (Knapp, Perkins, Beecham, Dhanasiri, and Rustin 2008).

1.1 Goals and research questions

The goals of this report are threefold:

1. To build on prior work by Hango and de Broucker (2007), which used Cycles 1 through 3 of the Youth in Transition Survey (YITS). They studied the impact of educational pathway on very early labour market outcomes when youth in the YITS-B cohort were aged 22 to 24. The recent release of Cycle 5 data allows for the study of the relationship between education and early labour market outcomes over a longer time period, with data for youth at age 26 to 28 years old.
2. To measure labour market outcomes over time. Labour market assessment is needed over time to help fully explain the transition to employment and careers of Canadian youth. Finnie (1999, 2001), for instance, has suggested that adaptation to the labour market is a process and as such, the transition should be studied at more than one time point. Similarly, Thomas and Zhang (2005) also assessed labour market outcomes at two points in time.
3. To examine the link between education and labour market outcomes across the entire educational spectrum. Analyses using the National Graduate Survey only consider graduates from post-secondary programs (Finnie 1999, 2001; Thomas and Zhang 2005). This supplies an incomplete picture of early labour market success, however, because the full range of educational pathways youth take to the labour market is not captured. In fact, it ignores some of the most vulnerable young adults in society: those who have a high school diploma or less. While this group has become smaller over time in Canada, they remain a very vulnerable population (de Broucker 2005a).

Four main research questions are addressed in this study, each are influenced by the three goals listed above, and all relate to how educational pathways impact upon the labour market outcomes of Canadian youth:

1. Do the effects of education on labour market outcomes change over time?
2. Does taking time off after high school matter?
3. Does returning to school benefit high school leavers?
4. How do graduates of post-secondary programs compare to each other?

The next section describes the data, methods and study design as well as specifying the modelling strategy before discussing results, which are split into three parts: descriptive; predicting the likelihood of full-year employment (using logistic regression); and predicting the log of yearly earnings (using ordinary least squares regression). All analyses are carried out 1 or 2 years after and 5 or 6 years after leaving school on a full-time basis.

Chapter 2

Data and methods

2.1 Data

The Youth in Transition Survey (YITS) is a Canadian longitudinal survey designed to examine the patterns of, and influences on, major transitions in young people's lives, particularly with respect to education, training and work. In order to address these objectives, data were collected from two cohorts of youth in the first cycle of the survey in 2000. One cohort began its participation at age 15 (Cohort A) and the other at ages 18 to 20 (Cohort B). In this report, all five cycles of Cohort B are used, providing information every two years from 2000 to 2008. At the time of the last cycle in 2008, respondents were aged 26 to 28. All longitudinal surveys are subject to sample attrition. Initially in Cycle 1, over 22,000 cases were available; by Cycle 2, this number decreased to fewer than 19,000; by Cycle 3, it decreased further to fewer than 15,000. Cycle 4 saw a further decline to just less than 12,500, while in the final cycle of data available in 2008 9,946 cases were available for analysis. Since this report uses all five cycles, survey weights from Cycle 5 are used in order to maintain generalizability due to attrition.

2.2 Data restrictions and sample design

Data from YITS are used to assess labour market outcomes at two points in time following the exit from full-time schooling: Time 1 refers to 1 or 2 years after leaving school and Time 2 refers to 5 or 6 years after leaving school. To create the sample for analysis, the main restriction was with regard to date last in school full-time. To be able to analyze labour market outcomes up to six years after leaving school, it was necessary to only include respondents who left school in December 2002 or earlier. Additionally, a small number of youth who left school on a full time basis prior to January 1997 were also removed from the analysis. The result is a sample of greatly reduced size; however, these restrictions were necessary in order to have a sample with valid responses on labour market outcomes at two points in time after leaving full-time school. If the sample is not the same across time, it is difficult to disentangle the changes due to individual behaviour or changes due to sample composition. Other work has utilized a similar approach with success (see Finnie's 1999 work using two cycles of NGS graduates). These substantial sample restrictions notwithstanding, the benefits to this approach are two-fold: first, by focussing on the date of school leaving rather than the date of graduation, youth who have left the education system without any credentials can be included, and second, it allows for the study of how certain educational pathways can impact upon one's labour market trajectory over a six-year period.

After imposing the aforementioned selection criteria based on time when respondents left full-time school, as well as removing any missing information from covariates on a listwise basis, the sample of 9946 was reduced to 3592 for the employment estimations and 3042 for the earnings estimations. For the ordinary least squares regressions pertaining to earnings, the sample size is somewhat smaller because they are restricted to youth with positive earnings at each respective time point. The drawback to a restrictive sample such as this is that it is more likely to include youth with lower education levels and of lower socioeconomic status, since it excludes youth who were still attending school full time and who, therefore, were likely to be enrolled in either college or university.

Table 2.1, for instance, compares select sample characteristics for the main sample as well as the two samples used for analyzing labour market outcomes. In general, the samples restricted to youth who left school no later than December 2002 are more likely to have lower education than the total YITS sample since the earlier leaving dates are biased towards a younger age at leaving and lower education levels. For instance, the average age of youth who left full-time school in the original sample is almost 23, yet in the restricted samples they are about age 20. Moreover, the proportion of the original sample with a high school diploma only is approximately 9%, yet in the restricted samples, this same proportion is closer to 20%. Conversely, in the original sample, the proportion with a university degree (without having first completed a college diploma) is around 12%[1], while in the restricted samples the proportion is much lower (between 6.3% and 2.3%). We also observe from Table 2.1 that youth in the samples used for analyses are less likely to have parents who have completed post-secondary degrees / diplomas and are more likely to be Canadian born. This last statement reflects the fact that immigrants have higher education levels than the Canadian born, on average.

Table 2.1

Descriptive statistics by sample restrictions, weighted[1]

	Original sample	Restricted samples by outcome	
		Employment	Earnings
	percent	percent	
Pathway			
No post-secondary education	19.57	34.98	33.07
High school droppers	6.17	8.93	7.9
High school only	8.88	19.92	19.56
2nd chance at high school, no post-secondary education	4.52	6.13	5.57
Direct route to post-secondary education	38.11	34.08	35.49
Non-gappers-post-secondary education leavers	4.13	6.99	6.93
Non-gappers-trade / other	2.91	3.29	3.21
Non-gappers-college	10.90	15.33	16.09
Non-gappers-college-university	5.58	2.72	2.95
Non-gappers-university	14.59	5.76	6.31
Indirect route to postsecondary education	35.42	30.94	31.44
2nd chance at high school, some post-secondary education	5.61	5.03	5.08
Gappers-post-secondary education leavers	4.73	7.80	7.39
Gappers-trade / other	4.39	4.24	4.36
Gappers-college	11.30	11.60	12.13
Gappers-university[2]	9.38	2.28	2.49
Missing	6.90	...	...
Gender			
Female	48.83	48.21	45.69
Male	51.17	51.79	54.31
Place of birth			
Canada	**91.97**	**95.40**	**95.52**
Elsewhere	7.88	4.60	4.48
Missing	F	...	
Parental education			
Less than high school	9.86	12.79	12.34
High school	25.74	34.29	33.97
Some post-secondary education	7.88	9.49	9.61
Post-secondary education graduate	51.49	43.42	44.08
Missing	5.04	...	...
Average date last in school full-time	Jan, 2003	May, 2000	May, 2000
Average age last in school full-time	22.57	20	20.04
Sample size	9,946	3,592	3,042

... not applicable

F too unreliable to be published

1. Weighted using Cycle 5 weight.
2. Includes Gapper-College-University as well.

Chapter 3

Variables

3.1 Educational pathway

The main independent variable in this analysis is the educational pathway youth take to the labour market after leaving school on a full-time basis. All five cycles are used in order to gain as complete a picture as possible; thus, December 2007 is the last date educational status is measured. Thirteen possible educational paths were measured, taking into account whether the respondent had ever dropped out of high school (and never returned); whether the respondent took time off after finishing high school and entering a post-secondary program; and the highest level of completed education. The thirteen paths are divided into three major sections: (1) no PSE (post-secondary education), (2) direct route to post-secondary education, and (3) indirect route to post-secondary education.

The paths included in the no post-secondary education group are youth who had ever dropped out of high school and never returned to obtain their high school diploma or any other type of training (Path 1 — high school droppers); youth who received a 'second chance' since they dropped out of high school, but then returned to obtain a high school diploma (Path 2 — 2nd chance at high school, no post-secondary education); and individuals whose highest level of education by December 2007 was a high school diploma only (Path 3 — high school graduate only). This latter group had never dropped out of high school.

Group 2 includes youth who had never dropped out of high school and who went directly (within four months[2]) to PSE following high school graduation. Five pathways are within this category: Path 4 — youth who started a post-secondary program but left prior to finishing (post-secondary education leavers); Path 5 – youth who obtained a trade / other type of diploma;[3] Path 6 — those who obtained a college diploma or a college diploma followed by a university degree. The final path (5) in this group includes youth with a university degree who went directly to university following graduation from high school (Path 7). This path is used as the reference category in all analyses, because it is the most common path within this sample; in addition, the analysis finds that this path affords youth the best chances in the labour market.

Group 3 involves youth who took a non-linear route through school. Five paths are in this group: Path 8 — youth who at one point had dropped out of high school, but then returned to school and obtained their high school diploma before going on to some form of post-secondary training (2nd chance at high school, some post-secondary education). In this path, about a third never obtained a post-secondary education credential. The remaining four paths include youth who never

dropped out of high school but who then delayed (more than four months) starting a post-secondary education program after high school completion (Path 9). These 'gapper' paths include post-secondary education leavers (Path 10), those with a trade or other type of diploma (Path 11), those with a college diploma (Path 12) and those with at least a bachelor's degree Path 13).[4]

3.2 Labour market outcomes

Labour market outcomes are linked with the date respondents said they were last in school on a full-time basis (which is known in monthly increments). For example, Cycle 1 was carried out in 2000 but labour market details were reported for 1999. Similarly for Cycle 2, which was carried out in 2002, 2001 labour market information is known. Therefore, the successive cycles of YITS up to Cycle 5 provide labour market information for 1999, 2001, 2003, 2005 and 2007. Specifically, the design is as follows. Young adults who left school prior to and including December 2002 were linked to specific labour market information depending on the number of years from their school leaving date. For example, to create Time 1 labour market variables (1 or 2 years after), respondents who left school in 1997 and 1998 were assigned 1999 earnings or employment status from Cycle 1; those who left school in 1999 and 2000 were assigned Cycle 2 labour market details from 2001, and those who left school in 2001 and 2002 were assigned Cycle 3 information from 2003. To create Time 2 (5 or 6 years after) measures respondents who left in 1997/1998, 1999/2000, or 2001/2002 were assigned labour market characteristics in 2003, 2005 or 2007, respectively.

3.2.1 Full-year employment

The first labour market outcome examined is employment. Specifically, it is a dichotomous measure indicating whether the respondent worked a full year (12 months) during the reference period, that is, for a full year at Time 1 (1 or 2 years out of school) or full year at Time 2 (5 or 6 years out of school). Full-year employment was used in order to assess employment stability after leaving school, since those employed for 12 months are likely to be in fairly stable jobs, one possible indicator of success in the labour market.

3.2.2 Earnings

The second dependent variable is annual earnings/wages from all sources. A great deal of prior research uses annual earnings as an important labour market outcome (see Betts, Ferrall, and Finnie 2007; Finnie 1999; Green and Riddell 2001; Walters 2004). Finnie (1999: 16) suggests that annual earnings represent a "rate of pay (as opposed to actual earnings received) which automatically adjusts for irregular work patterns over the course of the year." This approach therefore suits the purposes of the current paper over weekly or hourly earnings as the goal is to assess stability of earnings.

Similar to employment, earnings are also measured at two points in time, at Time 1 (1 or 2 years out of school) and at Time 2 (5 or 6 years out of school). In order to compare earnings across multiple years, earnings in each year were indexed to 2006 using the Consumer Price Index. Also, to reduce skewness in the distribution, logged earnings are used in all analyses.

3.3 Controls

Based on a review of the literature on education and labour market outcomes, factors other than educational pathway were identified and taken into account in the analytical models. These control measures can be grouped into three major themes: (1) background and demographic, (2) high school factors, and (3) contemporaneous factors present during the year when the labour market outcome is measured. Three background measures are included: sex (equals 1 if the respondent was female, 0 if male); place of birth (Canadian born equals 1, all else equal 0); and parental education (the level of education of either parent), which is split into less than high school (reference category), high school only, some post-secondary education and post-secondary education graduate. During high school, two important factors emerge that have an impact on both educational attainment and future earnings: working during high school and average marks. Number of hours worked per week in high school is separated into four categories: no hours (reference category); one to less than 10 hours; 10 to less than 20 hours; and more than 20 hours per week. Similarly, average academic marks in the last year of high school is split into four broad categories: high, medium high (reference category), medium and low, which corresponds to averages of 80% to 100%, 70% to 79%, 60% to 69% and 59% or less, respectively.

Last, contemporaneous factors measured during the same year as labour market outcomes are considered. Specifically, seven different factors known to impact labour market outcomes are used: age (measured in months); residential mobility (moving from province of high school after high school graduation); presence of child(ren) in the household; marital status (living married or common law versus all else); presence of a long-term mental / physical condition limiting work; province of residence ((split into Atlantic provinces, Quebec, Ontario (reference category) and West)); and the population size of the community in which the respondent lived. For the earnings regressions, one additional control is utilized — the number of months worked during the year. This last covariate is important since more highly educated workers tend to work more weeks per year; therefore, not controlling for weeks worked would lead to overstating the education effects (Riddell and Sweetman 2000).

Chapter 4

Descriptive results

4.1 Employment

4.1.1 Time 1 – 1 or 2 years after leaving full-time schooling

Table 4.1 shows labour market outcomes at both time points for each educational pathway. For full-time employment, we observe that the pathways that have the highest percentage employed 1 or 2 years after leaving school are Non-gappers who obtained a college diploma before also obtaining a university degree at 90%[5] and Gappers with a university degree at about 84%, followed closely by Non-gappers with a college diploma at 82.6% and Non-gappers with a university degree at 80%. In contrast, the path with the lowest proportion employed were the 2nd Chancers who eventually received their high school diploma (but not post-secondary education) at about 55%, followed closely by high school leavers and 2nd Chancers who eventually went to post-secondary education, at about 59%.

Interestingly, there appears to be only a slight difference between those who took a gap after high school versus those who did not, with Non-gappers faring marginally better. On average, across all Non-gappers, the employment rate was 79% and for all Gappers, it was 74%. The story is somewhat different, however, when examining the proportions employed for each type of educational pathway. For instance, Non-gappers who obtained a college diploma, and also those Non-gappers who left post-secondary education prior to obtaining a diploma or degree, had an employment rate about 5 percentage points higher than their Gapper counterparts. The reverse was observed, however, for the university educated: the employment rate for university-educated Gappers was about 4 percentage points higher than for Non-gappers, unless the university-educated Non-gappers obtained a college diploma prior to obtaining a university degree. This latter group experienced the highest employment rate of any path at Time 1.

Table 4.1

Proportion employed and average earnings, by educational pathway and number of years since leaving full-time school, same individuals over time

	Time 1: 1 to 2 years		Time 2: 5 to 6 years		Change between Time 1 and Time 2	
	Percent employed full-year	Average earnings	Percent employed full-year	Average earnings	Percentage change in employment	Percentage change in earnings
Variable	percent	dollars	percent	dollars	percent	
No post-secondary education						
High school droppers	58.60	11,448.34	74.64	21,279.51	27.37	85.87
High school only	71.37	14,587.20	75.70	22,708.62	6.07	55.67
2nd chance at high school, no post-secondary education	55.06	11,193.63	64.67	21,448.29	17.45	91.61
Direct route to post-secondary education						
Non-gappers-post-secondary leavers	72.52	16,848.22	88.20	26,561.02	21.62	57.65
Non-gappers-trade / other	71.77	23,369.80	84.30	33,379.59	17.46	42.83
Non-gappers-college	82.57	23,223.04	87.92	32,057.93	6.48	38.04
Non-gappers-college-university	90.21	26,678.15	89.77	38,349.62	-0.49	43.75
Non-gappers-university	80.44	25,177.35	88.54	43,958.44	10.07	74.60
All non-gappers	79.71	22,398.52	87.88	33,299.24	10.25	48.67
Indirect route to post-secondary education						
2nd chance at high school, some post-secondary education	59.14	14,332.72	82.84	24,698.55	40.07	72.32
Gappers-post-secondary leavers	67.92	17,616.65	86.97	30,378.79	28.05	72.44
Gappers-trade / other	73.18	21,484.78	86.89	27,883.77	18.73	29.78
Gappers-college	76.93	20,183.08	83.39	29,563.63	8.40	46.48
Gappers-university[1]	84.51	22,532.18	95.90	42,399.85	13.48	88.17
All gappers	74.27	19,835.51	86.14	30,524.96	15.98	53.89
Total	**72.21**	**17,787.87**	**82.15**	**28,008.69**	**13.77**	**57.46**

... not applicable

1. Includes gapper-college-university as well.

4.1.2 Time 2 – 5 or 6 years after leaving full-time schooling

Re-examining labour market outcomes several years after leaving full-time school allows for youth to more firmly establish themselves in the labour market. As a result, we may expect to observe different outcomes associated with the various educational pathways compared to those observed at the earlier time point. However, as shown in Table 4.1, similar patterns are evident in terms of stable employment at both Time 1 and Time 2; that is, rates of full-year employment were much higher for youth who were the most highly educated compared to those who at one point had dropped out of school and / or who had not taken any post-secondary education. For instance, approximately 96% of Gappers with a university degree worked for a full year, compared to 65% of 2nd Chancers with no post-secondary education training. In fact, to highlight the importance of post-secondary education, 83% of 2nd Chancers who have taken *at least some PSE* worked for 12 months 5 or 6 years after leaving school. This meant that full-year employment rates for 2nd Chance respondents with some post-secondary education training were, on average, about 18 percentage points higher than was the case for 2nd Chancers who never went beyond a high school diploma. This gap is largely the result of a 40% increase between Time 1 and Time 2 in employment for 2nd Chancers with post-secondary education and only a 17% increase for those without post-secondary education.

Moreover, across all pathways, except one, an increase in the employment rate was noted between Time 1 and Time 2: from a low of 6.07% for the High School Only path to a high of 40.07% for the 2nd Chancers with some post-secondary education. The lone exception is for Non-gappers who obtained a college diploma prior to obtaining a university degree. These individuals actually witnessed a slight decline in average employment rate over time. The fact that an increase in full-year employment for the great majority of pathways is found is an encouraging sign because it suggests that even among those groups that initially did not fare well, employment circumstances do improve over time (though they still lag far behind university graduates).

In terms of differences between Gappers and Non-gappers, generally speaking, the employment advantage accorded to Non-gappers at Time 1 had declined by Time 2. At Time 1, we observed about a 5.5 percentage-point difference between the two groups, but by Time 2 this had decreased to a less than 2 percentage-point difference. In contrast, differences remained for each individual pathway. For instance, Non-gappers with a College diploma still had close to a 5 percentage-point higher employment rate at Time 2, while the opposite is true for the university educated. In this case, the full-year employment rate for Gappers was about 7 percentage points higher than was the case for Non-gappers.

It is interesting to note as well that at Time 2, the employment gap between the university and college educated had increased, but only for youth who delayed going on to a post-secondary education program after high school. At Time 1, among Gappers, there was about a 7 percentage-point difference in the employment rate between university and college, but by Time 2, this difference had increased to close to 13 percentage points. Whether these differences remain after considering other factors in a multivariate analysis remains to be seen.

4.2 Earnings

4.2.1 Time 1 – 1 or 2 years after leaving full-time schooling

In terms of earnings at Time 1, the three highest earnings pathways, in order from the highest, are Non-gappers with a college diploma and a university degree, Non-gappers with a university degree, and Non-gappers with a Trade / Other type of certificate, with average earnings of $26,678, $25,177 and $23,369 respectively.[6] In contrast, the three lowest earnings pathways are (in order from lowest): 2nd Chancers, no post-secondary education, at $11,193, followed closely by high school droppers at $11,448, and 2nd Chancers with at least some post-secondary education, at $14,332. This last pathway is followed closely by youth with a high school diploma only at $14,587. Interestingly, at this early time point, there appears to be an earnings premium associated with post-secondary education for youth who had ever dropped out of high school, but then returned. The group that returned to complete their high school diploma and then went on to some type of post-secondary education earned approximately $3,100 more per year on average than the group that returned but only received a high school diploma. The most striking trend observed is the increase in earnings associated with pathways leading to post-secondary education diplomas or degrees. On average, these youth earned close to $23,000 per year initially after leaving school, an increase of about 33% compared to pathways including youth who had never completed a post-secondary education diploma or degree.[7]

As with employment, there does appear to be some benefit soon after leaving school of going directly from high school to post-secondary education: Non-gappers, on average, earned about $2,500 more than their Gapper counterparts. For instance, Non-gappers with a university degree earned about $2,600 more per year than Gappers with a university degree, while Non-gappers with a college degree earned about $3,000 more than their Gapper counterparts. The difference for those with trade or other types of certificate is smaller but still present, at about $1,800 per year. These average earnings suggest that at least initially, going directly to post-secondary education following high school completion may be beneficial for those eventually completing university, college or a trade / other type of program. Last, similar to findings reported by Allen and Vaillancourt (2004), the results also indicate that having a university degree leads to substantially higher earnings than does a college diploma at Time 1, approximately $3,000 more. This effect is present regardless of whether respondents took time off after high school.

4.2.2 Time 2 – 5 or 6 years after leaving full-time schooling

In terms of average earnings at Time 2, the highest levels are again observed for those pathways that led to the completion of a university degree: Non-gappers-University, Gappers-University and Non-gappers-College-University have the highest average earnings, at $43,958, $42,399 and $38,349, respectively. These three paths stand out much more when compared with the other pathways in a way which is different than that observed for employment. For example, the pathway with the next highest average earnings level after the Non-gappers-College-University path is Non-gappers-Trade / Other, at $33,379, followed closely by Non-gapper-College, at $32,057. In fact, the earnings gap between college and university graduates increased over time: at Time 1, individuals in pathways leading to a university degree earned, on average, $3,000 more than their counterparts with college diplomas; by Time 2, this difference had increased to an earnings advantage of close to $11,000.

At the opposite extreme, high school leavers, on average, earned the least, at $21,279, followed closely by 2nd Chancers with no post-secondary education, at $21,448. Thus, the rank ordering of earnings remains very consistent across time: what was high before remains high and what has low before remains low. It is promising to note, however, that each pathway experienced increased average earnings over time (Finnie 2001 had similar findings using the National Graduate Survey), which is not surprising given what we know about wage growth for the general Canadian public during this time period (see Lin 2008). However, even considerable growth in earnings for high school leavers (an 85% increase) did not begin to close the earnings gap with youth who had earned a post-secondary education diploma or degree.

When considering the impact of taking time off after high school, we observe that Non-gappers earned more than Gappers at both time points: at Time 1, Non-gappers earned, on average, $22,398 and Gappers earned $19,835. The difference remained very consistent across time, with Non-gappers earning $33,299 and Gappers earning $30,524 at Time 2. The differences are not uniform across pathways, however. For example, when considering education level, we note that between Time 1 and Time 2, the difference between Gappers and Non-gappers in average earnings for university graduates decreased by about $1000, while the

gap between those with trade / other certificates increased by over $3500. Interestingly, for post-secondary education leavers at Time 1, there was only a $700 difference between Non-gappers and Gappers, but by Time 2, this difference increased sharply, with Gapper-post-secondary education Leavers on average earning about $3,800 more than Non-gappers-post-secondary education Leavers. This latter trend likely illustrates the better position afforded to youth who may have taken time off between high school and post-secondary education to work. In other words, they may be better able to function in the labour market several years after leaving school than youth who went directly to post-secondary education after high school because they may have some prior labour market experience to offset the lack of a completed diploma or degree program.

4.3 Summary of descriptive analysis

To summarize, the descriptive analysis leads to five key observations. First, similar to past research, this analysis also highlights the importance that attending a post-secondary institution has on labour market outcomes. Consistently, the pathways with either the lowest proportion employed full-year or with the lowest average earnings are those with a high school diploma or less. Second, this positive impact of post-secondary education attendance is consistent over time and is observed shortly after leaving school as well as several years later. Third, returning to complete high school after dropping out does not necessarily improve labour market outcomes compared to youth who dropped out and never returned. However, if these '2nd Chancers' went to post-secondary education, there was a clear positive impact in terms of both employment and earnings, especially several years after leaving school. Fourth, on average, Non-gappers appear to fare slightly better in the labour market both in terms of employment and earnings. There is, however, one important exception. At both time points, university-educated Gappers had higher employment rates than Non-gappers. At the initial time-point, the difference was negligible, at 4 percentage points; however, by Time 2, these university Gappers, on average, had an employment rate of 96%, while for university Non-gappers the employment rate was 89%. Fifth, university graduates earned more than college graduates, a trend which is observed at both time-points, but which increases by Time 2. Employment differences between these groups are less pronounced, except that at Time 2 for Gappers, when the university educated had over a 10 percentage-point advantage in the employment rate compared to Gappers with a college diploma.

In the next stage, the analysis is extended to include appropriate control variables in order to account for factors other than educational pathway that may have an effect on the relationship between education and labour market outcomes. This will help to determine whether the above relationships between educational pathways and the labour market hold once controlling for the influence of other factors.

Chapter 5

Multivariate results

Three separate models are estimated for each dependent variable. The first model includes only the educational pathways variable and a dichotomous measure indicating if the respondent has been out of school for 2 years or for 6 years. This measure is a proxy for experience in the labour market. The second model adds background measures such as sex, place of birth and parental education, as well as two important factors during high school, frequency of working and marks. The third or full model adds variables from the year the labour market outcome is measured — interprovincial mobility between high school and the labour market year, age, presence of children in the household, marital status, presence of a long-term condition that limits work, province of residence, population size of the community where the respondent lived, and number of months worked (for the earnings regressions). For the most part, the discussion focuses on the results of the full models; however, any important and substantial changes across models also are noted.[8]

5.1 Likelihood of being employed on a full-year basis for 12 months

5.1.1 Time 1 – 1 or 2 years after leaving full-time schooling

Table 5.1 presents results from a series of logistic regressions predicting the likelihood that respondents worked a full year (1 = worked 12 months, 0 = not) at two different time points following the exit from full-time school. These models produce odds ratios — an odds ratio less than 1 indicates a negative effect while an odds ratio above 1 indicates a positive effect.[9] A first glance at Model 3 for Time 1 does not reveal very many significant differences from the reference category (Non-gappers-University), with the following exceptions. At this initial time-point a couple of years out of school, high school leavers, 2nd Chancers with no post-secondary education, 2nd Chancers with some post-secondary education, and Gapper-post-secondary education leavers were all significantly different from the reference category; the latter two effects were weak, however. Specifically, for high school leavers, the odds of being employed were 55.8%[10] less than those for Non-gappers with a university degree; for 2nd Chancers with no PSE the difference in the odds are even greater, at 64.9%[11] less.

Table 5.1

Logistic regression results on full-year employment at two time points after respondents have left school on a full-time basis

	Time 1: 1 to 2 years after			Time 2: 5 to 6 years after		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Variable	odds ratios					
Educational pathway (Reference: Non gapper-university)						
No post-secondary						
High school droppers	0.3344***	0.3686***	0.4421**	0.3774**	0.4135*	0.7090
High school only	0.5888**	0.5978*	0.7066	0.3994**	0.3929**	0.6062
2nd chance at high school, no post-secondary	0.2902***	0.3067***	0.3509***	0.2350***	0.2296***	0.3193**
Direct route to post-secondary						
Non-gappers-post-secondary leavers	0.6235	0.5960	0.6369	0.9589	0.9398	1.2824
Non-gappers-trade / other	0.6036	0.5657	0.5878	0.6898	0.6838	0.8831
Non-gappers-college	1.1305	1.0917	1.0780	0.9361	0.9783	1.0700
Non-gappers-college-university	2.2448	2.4106	2.0713	1.1358	1.0552	0.9080
Indirect route to post-secondary						
2nd chance at high school, some post-secondary	0.3436**	0.3871**	0.4230*	0.6201	0.7218	0.8803
Gappers-post-secondary leavers	0.4974**	0.4725**	0.5193*	0.8545	0.8025	1.0890
Gappers-trade / other	0.6468	0.6271	0.6733	0.8507	0.8543	1.1517
Gappers-college	0.7910	0.7566	0.7905	0.6447	0.6499	0.7735
Gappers-university[1]	1.3228	1.3107	1.2825	3.0261*	3.2748**	3.0566 *
Out of school 2 years, or 6 years (Reference: 1 or 5 years)	**1.0880**	**1.1115**	**1.0938**	**1.0264**	**1.0715**	**1.0711**
Female	...	0.9072	1.0086	...	0.5603***	0.6914**
Respondent was born in Canada	...	**1.5465**	**1.5010**	...	**0.2765****	**0.2635****
Highest level of parental education (Reference: Less than high school)						
High school only	...	0.8467	0.8665	...	1.2687	1.3107
Some post-secondary	...	1.0413	1.0875	...	1.0687	1.0772
Post-secondary graduate	...	0.8055	0.8219	...	1.2506	1.2391
Number of hours of paid work in last year of high school (Reference: Zero)						
1 to less than 10	...	1.4947**	1.5090**	...	1.4348*	1.5092**
10 to less than 20	...	1.4091**	1.4058**	...	1.4878*	1.4950 *
More than 20	...	1.3042	1.3216	...	1.2439	1.2396
Grade point average in last year of high school (Reference: 70 to 79%)						
High (80% to 100%)	...	0.9803	1.0030	...	1.0509	1.0897
Medium (60% to 69%)	...	0.7567*	0.7605	...	0.9846	1.0233
Low (59% or less)	...	0.5410*	0.5726*	...	0.5295*	0.5457
Factors from year employment is measured						
Moved provinces after high school	...	...	0.7565	...	...	1.0446
Age	...	...	1.0352	...	...	1.0599
Presence of child in household	...	...	0.5064***	...	...	0.4215***
Married or common-law	...	...	1.0053	...	...	1.3188 *
Presence of a long-term physical or mental condition	...	...	0.8060	...	...	0.4981***
Province of residence (Reference: Ontario)						
Atlantic provinces	...	...	1.0746	...	...	0.8821
Quebec	...	...	1.2259	...	...	1.1860
West	...	...	0.9589	...	...	0.7496
Respondent lived in a population centre	...	...	1.0421	...	...	1.2477
Sample size	3,592	3,592	3,592	3,592	3,592	3,592

... not applicable
* p<0.10, statistically significant at the 10 percent level.
** p<0.05, statistically significant at the 5 percent level.
*** p<0.01, statistically significant at the 1 percent level.
1. This category also contains gapper-college-university path.

In earlier models, youth with a high school diploma only (and who had not previously dropped out) had significantly lower odds of being employed than the university educated who went directly to post-secondary education after high school. However, this significant difference was removed once concurrent factors affecting employment were considered in Model 3. These contemporaneous factors also weakened the effects for 2nd Chancers with some post-secondary education and Gapper-post-secondary education Leavers.

The significance levels reported in Table 5.1 however do not tell the entire story since they only report the significant differences between each pathway and the control group, which in this case is Non-gappers with a university degree. A series of Wald tests were performed after each estimation in order to test for significant differences between the other pathways. These tests revealed that the greatest difference was between the Non-gapper-College-University pathway and almost all other pathways. With the exception of Non-gappers with college diplomas and Gappers with university degrees, Non-gappers who went to college and then university had significantly greater odds of full-year employment than every other educational pathway. This trend was also noted in the descriptive analysis. Moreover, at this first time point, there were no significant differences in the odds of full-year employment between the two 2nd Chance groups. In other words, a couple of years after school, youth who had ever dropped out of school and who then returned had similar odds of full-year employment, regardless of whether they went on to post-secondary education; these 2nd Chance youth also had similar employment levels to high school leavers who never returned.

In terms of whether taking time off between high school and post-secondary education matters for early employment, we do not see any significant differences. This suggests that going directly, or delaying the start of post-secondary education after high school, makes no difference for the odds of full-year employment a couple of years after leaving school; both groups have about the same chance of full-year employment. This finding is important as it enhances our understanding of the differences between pathways from what we observed with the descriptive analysis. With the multivariate findings we can now say with some confidence that the differences we observed in the descriptive analysis do not hold once other factors are taken into account; thus, the observed differences between Gappers and Non-gappers on employment a couple of years after leaving school appear to be explained by other factors.

In terms of the control variables, only two factors can be considered robust predictors of full-year employment. First, in terms of adolescent employment, similar to past research (Hango and de Broucker 2007; Marsh and Kleitman 2005), the results show that working 1 to 10 hours during high school increases the odds of employment by 50%; this decreases to 40% if they worked between 10 and 20 hours per week on average. However, these positive effects of working in adolescence on employment in early adulthood must be tempered somewhat by prior findings which showed that working a great deal in high school is associated with lower levels of educational attainment (Hango and de Broucker 2007). Second, in line with past research, having at least one child in the household decreases the odds of full-year employment by approximately 49% (also see Waldfogel 1998; Zhang 2009).[12]

5.1.2 Time 2 – 5 or 6 years after leaving full-time schooling

As before, Table 5.1 presents results from logistic regressions at both time points. Results from Model 3 at Time 2 reveal that the Non-gapper-University advantage in terms of full-year employment has all but disappeared. The only pathway with significantly lower odds of being employed on a full-year basis compared with the reference category is 2nd Chancers without any post-secondary education, who are almost 70% less likely than Non-gappers with a university degree to be employed. Wald tests reveal that this pathway of 2nd Chancers without any post-secondary education also has significantly lower odds of full-year employment than every other educational pathway, including high school leavers. Furthermore, these 2nd Chancers without any post-secondary education had significantly lower odds of employment than their 2nd Chance counterparts who had gone on to some type of post-secondary education. This difference did not exist at the first time point, suggesting that it takes several years for the positive effect of post-secondary education to emerge in the labour market for youth who had ever dropped out of high school but who then returned to complete their high school diploma.

In contrast, a significant effect, albeit weak, emerges at this time point which did not exist previously. Several years after leaving school, Gappers with a university degree are significantly more likely than their Non-gapper counterparts to be employed on a full-year basis. These highly-educated Gappers are over three times more likely than their Non-gapper counterparts to work a full-year at Time 2. It is interesting to note that this difference was observed during the descriptive analysis as well (see Table 4.1). Furthermore, the Gapper-University pathway also has significantly higher odds of full-year employment than every other pathway, except for Non-gappers who obtained a college diploma prior to obtaining a university degree. No other differences were observed within, as well as between, education types for Gappers and Non-gappers at this time point. This implies that several years after leaving school, the university- and college-educated in general are remarkably similar, except for Gappers with a university degree who had significantly higher odds of full-year employment than everyone else, including their college-educated counterparts. Thus, at this second time point, the real difference between the university educated and the other pathways is between Gappers with a university degree and everyone else; this demarcation did not exist at Time 1.

Moreover, what these results suggest is that several years after leaving school, some changes with regard to employment appear to be occurring within certain educational pathways. As we saw in the descriptive analysis, almost every pathway had a full-year employment rate that was higher (and in some cases much higher) at Time 2 than at Time 1.[13] The changes across time within pathway do not remain, however, once we control for important covariates. Moreover, Wald tests reveal that the odds of employment do not change significantly across time points, suggesting remarkable consistency over a 6-year span once factors such as age, sex, and other demographic variables are taken into consideration in Model 3.

With respect to the control variables, four new factors are now significant at Time 2 that were not present at Time 1: being female decreases the odds of full-year employment by 30%; being Canadian born decreases these odds by close to 75%;[14] having a long-term physical or mental condition reduces the odds by 50%;[15] and being married or living in a common-law relationship increases the odds of

full-year employment by about 32%. At the same time, similar to Time 1, we also note a significant positive effect of working during high school and a significant negative effect of having at least one child in the household.

5.2 Ordinary least squares regression on log of yearly earnings

5.2.1 Time 1 – 1 or 2 years after leaving full-time schooling

The second labour market outcome examined in this report is annual earnings from salary or wages (indexed to 2006 using the Consumer Price Index), logged in order to reduce skewness. All effects are interpreted as percent change in earnings as a result of each independent variable. To obtain the exact percentage change in earnings the following formula is used: $e^{\hat{a}}$-1, however, â is a good approximation of percentage change at relatively small values.

From Table 5.2, we observe in our final model of Time 1 that, in general, any pathway that does not lead to the attainment of a post-secondary education credential results in significantly lower earnings than university graduates who did not have a gap between high school and first post-secondary education program. This is similar to recent descriptive findings by Shaienks and Gluszynski (2009) using the same dataset. For instance, when controlling for all other factors, high school leavers earned about 36%[16] less than the Non-gapper-University path. Moreover, all 2nd Chancers earned considerably less than Non-gappers with a university degree: 37% less for those without post-secondary education and 28% less for those with some post-secondary education.[17] Also, there appears to be a penalty for not completing a post-secondary education program: post-secondary education Leavers earned about 22%[18] less than the Non-gapper-university path, regardless of whether the post-secondary education Leavers had delayed the start of their post-secondary education program. These effects are very similar to what was observed in the initial model for full-year employment.

Table 5.2

Regression results on logged earnings at two time points after respondents have left school on a full-time basis

	Time 1: 1 to 2 years after			Time 2: 5 to 6 years after		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Variable	odds ratios					
Educational pathway (Reference: Non-gapper-university)						
No post-secondary education						
High school droppers	-0.8080***	-0.7892***	-0.4455***	-0.7476***	-0.7567***	-0.4089***
High school graduate only	-0.5660***	-0.5750***	-0.2847**	-0.6830***	-0.7235***	-0.3553***
2nd chance at high school, no post-secondary education	-0.8284***	-0.8330***	-0.4582***	-0.7374***	-0.7677***	-0.4384***
Direct route to post-secondary education						
Non-gappers-post-secondary education leavers	-0.4230***	-0.4669***	-0.2567**	-0.5275***	-0.5950***	-0.3410***
Non-gappers-trade / other	-0.0915	-0.1406	0.0159	-0.2943**	-0.3640***	-0.1589
Non-gappers-college	-0.0948	-0.0907	-0.0029	-0.3313***	-0.3356***	-0.1785**
Non-gappers-college-university	0.0601	0.0826	0.0059	-0.1341	-0.1410	-0.0707
Indirect route to post-secondary education						
2nd chance at high school, some postsecondary education	-0.5822***	-0.4635***	-0.3285**	-0.5974***	-0.5083***	-0.3468**
Gappers-postsecondary education leavers	-0.3805***	-0.4423***	-0.2371**	-0.3954***	-0.4843***	-0.3012***
Gappers-trade / other	-0.1780*	-0.1599	0.0316	-0.4768***	-0.4858***	-0.2928**
Gappers-college	-0.2392*	-0.2285**	-0.1494	-0.4168***	-0.4228***	-0.2483***
Gappers-university[1]	-0.1143	-0.0959	-0.1276	-0.0397	-0.0146	-0.0203

Table 5.2 concluded

Regression results on logged earnings at two time points after respondents have left school on a full-time basis

	Time 1: 1 to 2 years after			Time 2: 5 to 6 years after		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
	coefficient			coefficient		
Out of school 2 years, or 6 years (Reference: 1 or 5 years)	**0.0614**	**0.0767**	**0.0175**	**0.0680***	**0.0715***	**0.0258**
Female	...	**-0.3965*****	**-0.3969*****	...	**-0.4080*****	**-0.3706*****
Respondent was born in Canada	...	**0.1738**	**0.1449**	...	**0.0793**	**0.1665**
Highest level of parental education (Reference: Less than high school)						
High school only	...	0.0070	0.0127	...	0.0036	-0.0159
Some post-secondary	...	0.1107	0.1195	...	0.0503	0.0639
Post-secondary graduate	...	0.0405	0.0427	...	0.0886	0.0625
Number of hours of paid work in last year of high school (Reference: Zero)						
1 to Less than 10	...	0.1457*	0.1134	...	0.1052*	0.0960 *
10 to less than 20	...	0.2777***	0.2503***	...	0.1928***	0.1755***
More than 20	...	0.2494***	0.2490***	...	0.1593***	0.1705***
Grade point average in last year of high school (Reference: 70 to 79%)						
High (80% to 100%)	...	0.0619	0.0552	...	-0.0065	-0.0144
Medium (60% to 69%)	...	-0.1872**	-0.1506*	...	-0.0825*	-0.0674
Low (59% or less)	...	-0.2861*	-0.0714	...	-0.3609**	-0.2741**
Factors from earnings year						
Moved provinces after high school	...	...	0.1187	...	...	0.0548
Age	...	...	0.0729***	...	...	0.0676***
Presence of child in household	...	...	-0.1330	...	...	-0.2507***
Married or common-law	...	...	0.1086**	...	...	0.1954***
Number of months worked	...	...	0.1237***	...	...	0.0836***
Presence of a long-term physical or mental condition	...	...	-0.1191*	...	...	-0.1943***
Province of residence (Reference: Ontario)						
Atlantic provinces	...	...	-0.1114*	...	...	-0.0952**
Quebec	...	...	0.0499	...	...	-0.0306
West	...	...	0.1222*	...	...	0.0899 *
Respondent lived in a population centre	...	...	-0.0807**	...	...	0.0737 *
Constant	10.1159***	9.9721***	6.9373***	10.6713***	10.6863***	7.6250***
Sample size	3042	3042	3042	3042	3042	3042
R^2	0.0955	0.1769	0.3275	0.0797	0.1695	0.2757

... not applicable

* p<0.10, statistically significant at the 10 percent level.

** p<0.05, statistically significant at the 5 percent level.

*** p<0.01, statistically significant at the 1 percent level.

1. This category also contains gapper-college-university path.

When comparing educational pathways to each other (as opposed to only the reference category) via Wald tests, we find that 2nd Chancers have similar earnings regardless of whether they had continued on to post-secondary education. Moreover, 2nd Chancers did not earn significantly more than high school leavers. Additionally, no significant earnings differences were noted between Gappers and Non-gappers. However, at this early time point after leaving school, it is interesting to observe that the university advantage, as compared to non-post-secondary education pathways, only extends to youth who went directly to post-secondary education following high school graduation. In other words, youth with university degrees who delayed going to university after high school did not earn

significantly more than youth with high school diplomas only or even youth who had dropped out of high school prior to obtaining their diploma.

With respect to control variables, we note that females have lower earnings than males, earning about 33%[19] less, on average (see Frenette and Coulombe 2007; Thomas and Zhang 2005). Other negative effects include having a long-term physical / mental condition that limits work; living in the Atlantic Provinces; and living in larger population centres. For instance, having a limiting condition lowers earnings by about 11%.[20] Youth who live in the Atlantic Provinces earned about 10% less than youth from Ontario;[21] in contrast, youth living in the West earned about 13% more than youth living in Ontario.[22] Meanwhile, youth in larger population centres earned almost 8% less than youth from rural areas.[23] These effects are weak, however, and should be interpreted with this in mind.

Last, as with employment, we also observe a positive effect of working during high school on later earnings: the positive impact peaks at 10 to 20 hours a week. These youth have about 28% higher earnings than youth who did not work during high school.[24] As expected, positive effects are also noted for age, respondents who were married or in common law relationships and for number of months worked during the year. Interestingly, net of education, a weak significant effect is observed for marks in the last year of high school. Specifically, youth with average marks between 60% and 69% earned about 14% less than youth whose average marks were between 70% and 79%.[25] This appears to be in line with past research using more objective measures of cognitive ability (see Green and Riddell 2001; McIntosh and Vignoles 2001).

5.2.2 Time 2 – 5 or 6 years after leaving full-time schooling

Table 5.2 shows the results from regressions predicting the log of annual earnings at Time 2. Model 3 illustrates very similar findings to those from Time 1, namely, that high school leavers, respondents with high school only, all 2nd Chancers and all PSE leavers earned significantly less than Non-gappers with university degrees. However, at this time point, we also now observe significantly lower earnings for all college graduates (regardless of gap) and Gappers with a trade or other type of certificate compared to Non-gappers with university degrees. For instance, college graduates who had not delayed college attendance after high school earned 16% less than Non-gappers with a university degree; their Gapper counterparts earned about 22% less.[26]

Moreover, with respect to other education levels, Wald tests do not reveal any significant earnings differences between Gappers and Non-gappers, or between the two 2nd Chance pathways. These findings are consistent across both time points, suggesting a different pattern than that observed for employment where 2nd Chancers with post-secondary education and university-educated Gappers had greater probabilities of full-year employment than their counterparts with no post-secondary education and Non-gapper university graduates.

Also, in terms of change across time, the earnings results differ from the employment results. Between Time 1 and Time 2, the earnings coefficients were significantly lower for individuals in the Non-gappers with college diplomas pathway and Gappers with trade certificates or other types of diploma pathway. This suggests that these two pathways may not be keeping pace with Non-gappers with university degrees several years after leaving school.

A key finding of the analysis at Time 2 is that the university educated, regardless of gap, appear to be pulling away from almost all other educational pathways in terms of yearly earnings.[27] The exceptions are Non-gappers with trade / other certificates versus all university educated and Non-gappers with college diplomas versus Gappers with university degrees. This trend was also observed in the descriptive analysis. However, these multivariate findings indicate that the pattern is real and substantial after controlling for important factors known to affect labour market outcomes. Thus, as youth are in the labour market longer, having a university degree appears to pay off more compared to having a college diploma or some other type of post-secondary education credential.

With respect to the control variables, several factors remain consistent over time. For instance, the negative effects of being female, having a physical or mental health condition, living in the Atlantic Provinces and having low marks remain; while the consistent positive effects of working during high school, being in a marriage or common-law relationship, living in the West and number of months worked also remain. This latter effect, while still significant at Time 2, decreases somewhat, which is in line with findings by Thomas and Zhang (2005), who suggest that number of hours worked has a larger impact in determining earnings at the beginning of one's career.

Chapter 6

Discussion

In this paper, broad educational pathways were organized according to three major criteria: (1) no post-secondary education, (2) direct route to post-secondary education, and (3) indirect route to post-secondary education. This typology allows for an analysis of the impact of a broad spectrum of educational pathways on youth labour market outcomes: from those who dropped out of high school to those with university degrees. Two important labour market factors (employment and earnings) were considered at two points in time following the exit from full-time schooling.

On the whole, the current findings suggest that pathways through the education system are various, but all are not equal in terms of labour market outcomes. In general, for this sample of young Canadian adults at age 26 to 28, the post-secondary-educated, especially those with a university degree, have the most successful labour market outcomes. This is not a novel finding, but perhaps the statement is too simplistic, because it ignores the differences between educational pathways. These important findings are discussed below with respect to the four research questions posed at the outset: (1) Do the effects of education on labour market outcomes change over time? (2) Does taking time off after high school matter? (3) Does returning to high school benefit high school leavers? (4) How do graduates of post-secondary programs compare to each other?

6.1 Do the effects of education on the labour market change over time?

In general, the rank ordering of educational pathways on labour market outcomes remains remarkably consistent across both time points, especially for earnings: earnings that were high initially after leaving school were high several years later, while earnings that were low initially remained low in relation to other pathways. At the same time, descriptive analyses revealed that employment rates and yearly earnings increased across all pathways as time out of school increased. Finnie's (1999) work using the NGS found a similar improvement over time in the labour market outcomes of post-secondary education graduates.

However, this improvement in the labour market over time turned out not to be significant in the multivariate models, once controlling for all other pertinent factors. For example, the likelihood of full-year employment in each pathway did not change significantly from Time 1 to Time 2. The opposite result was found for earnings, especially with regard to Gappers with a trade certificate or other type of diploma and Non-gappers with college diplomas. Youth in these two pathways saw the gap in their yearly earnings, compared to youth with a university degree,

increase significantly over time after leaving school. In other words, some youth with trade certificates, other types of diplomas, and college diplomas may not be keeping pace with Non-gappers with university degrees several years after leaving school.[28] It should be noted, however, that these findings may not necessarily take into account the period of apprenticeship for individuals with trade certificates. Moreover, these results indicate that the factors resulting in increased employment and earnings over time are not related to simply waiting for time to pass – they are the results of factors that are already present after leaving school. Therefore, for example, young adults cannot simply wait and expect his or her chances of being employed to increase – they must try to adopt the characteristics of individuals who are more employable, regardless of age or time out of school.

6.2 Does taking time off after high school matter?

By and large, youth who entered directly into the post-secondary system had higher average employment rates and earnings, both initially and several years after leaving school. However, this descriptive finding does not remain consistent in the multivariate models once other pertinent factors are taken into account. For example, with regard to the university educated, at the initial time-point, there were no employment differences between university Gappers and Non-gappers; however, by the second time point, youth who had delayed going to university were significantly more likely to be employed for a full year than those who had gone directly after high school. The exact reason for this finding is unclear; however, some additional descriptive analyses (not shown) suggests that the reason may partly be related to the fact that university-educated Gappers worked more hours, on average, in high school. On the one hand, working in high school may have led to their delay in going on to post-secondary education; on the other hand, this early labour market experience may have proved valuable for later employment once they graduated from university.

With respect to earnings, when considering all educational pathways, initially the university advantage in the labour market was only afforded to youth who went directly to university following high school graduation. Multivariate models show that initially, Gappers with university degrees did not earn significantly more than youth without any post-secondary education credential; this includes youth who never finished high school. Thus, it appears that taking time off does matter, but the advantage in early entry into formal education beyond secondary school and the labour market becomes less important than professional experience over time.

Direct comparisons between the current findings and those in the literature are hampered by two factors: the first is with regard to the paucity of relevant research and the second is with regard to definitional differences. For instance, some recent work using the NGS found that post-secondary graduates who delayed the start of their post-secondary education programs following high school graduation received a premium in the labour market relative to graduates who went directly, even after considering factors such as experience and labour market connections (Ferrer and Menendez 2009). Yet, some earlier work in the United States found that young men who delayed their schooling received wage boosts that were smaller than their counterparts who had not delayed (Light 1995). These

findings coupled with those from the current study suggest that the issue of 'taking a gap year' needs further refinement and study.

6.3 Does returning to school benefit high school leavers?

Descriptive analyses revealed that those who returned to high school after dropping out did not necessarily experience an improvement in their labour market outcomes compared to youth who dropped out and never returned; this is true at both time points.[29]

The separation of the 2nd Chance group led to an interesting finding: if these 2nd Chancers went on to post-secondary education, there was a clear positive impact on the labour market both in terms of employment and earnings. For example, the employment rates at Time 1 and 2 for 2nd Chancers with some post-secondary training were 59.1% and 82.8%, respectively. The comparable employment rates for 2nd Chancers with no post-secondary training were 55.1% and 64.7%, respectively. In other words, at the descriptive level, the gap between employment rates grew from 4 percentage points to 18 percentage points over time. This latter effect at Time 2 is quite robust as it remained significant in multivariate models as well (the effect at Time 1 did not remain significant in multivariate models), suggesting that it likely takes several years for the positive effect of post-secondary education to emerge in the labour market for youth who had ever dropped out of high school but who then returned, at least in terms of employment. Data from Australia and the United States support the finding that a couple of years out of school 2nd Chancers have similar labour market experiences as dropouts who never returned to school (Rumberger and Lamb 2003).[30] Rumberger and Lamb (2003:362) suggest "that even if dropouts who complete high school have equivalent cognitive skills to high school graduates who never drop out, they may not have equivalent non-cognitive skills (e.g., perseverance) that lead to productive activity after high school. And even if they have greater cognitive skills than high school dropouts who never return, they may still be similarly deficient in non-cognitive skills that lead to investment in productive activity after high school."

Interestingly, even though on average 2nd Chancers with post-secondary training earned considerably more than their counterparts without any post-secondary training, the difference did not remain once important control variables were introduced. This was found at both time points. What these findings with respect to 2nd Chancers suggest is that the post-secondary experience is helping them gain a foothold in the labour market (especially at Time 2), but since earnings are more or less the same, the post-secondary training has not necessarily translated into better-paying jobs. Moreover, the earnings of 2nd Chancers still lag behind those of youth who never dropped out of school and then obtained a post-secondary education degree or diploma. This fact must be kept in mind when discussing the positive impact of completing a post-secondary education for 2nd Chancers, since even though their chances of employment have improved, they are still penalized for having dropped out in high school. The current findings however may not adequately take into account issues related to prior cognitive skills, the change in cognitive skills over time and also the job quality of 2nd Chancers; therefore, it is difficult to ascertain the real reason behind these current findings. These avenues remain for future research.

6.4 How do graduates of post-secondary programs compare to each other?

In terms of labour market outcomes, a distinction was noted between pathways culminating in a post-secondary degree or diploma versus those that did not. Are there significant labour market differences among the post-secondary educated? The short answer is 'it depends.' It depends on which outcome is measured, as well as time point and education level. For instance, no significant differences were noted for employment at the initial time point, except for Non-gappers who obtained a college diploma and then a university degree. These individuals had significantly greater odds of being employed for a full-year than any other pathway.

At the same time, at the initial time point, no significant earnings differences were found between the university educated and the other pathways culminating in a post-secondary education diploma or certificate. However, by the second time point 5 to 6 years after leaving school, an earnings difference was observed between youth with university degrees and other post-secondary education graduates. Thus, several years after leaving school, the earnings of the university educated (regardless of whether they were Gappers or Non-gappers) appear to be pulling ahead of all other educational pathways. This is echoed somewhat with respect to employment as well, except that differences are confined to Gappers with a university degree who have significantly greater odds of full-year employment than college graduates or graduates with a trade certificate or other type of diploma. The finding that a university education performs best in the labour market is aligned with other results from Canada (Ferrer and Riddell 2002) and internationally (Blundell et al 2005; Kerckhoff et al 2001). In addition, the current finding related to the growing university advantage over time is similar to figures from the 2006 Census, which showed that across successively older age groups, the average income of the university educated climbs much higher and faster than all other education groups.[31] Importantly, however, the current paper, in line with previous research, confirms that early labour market outcomes for young adults with post-secondary credentials are very similar.

6.5 Where do we go from here?

The current paper has provided insights into the early labour market outcomes of young Canadian adults once they leave the education system. Moreover, this most recent cycle of the Youth in Transition Survey (Cohort B) has allowed for the examination of the links between educational pathway and labour market outcomes up to age 26 to 28. It would be interesting to follow this cohort for a longer time period, since we know that approximately 15% of the cohort was still in school at age 26 to 28 (Shaienks and Gluszynski 2009). By following them for a longer time period, it would be possible to more comprehensively describe the outcomes over time associated with the full range of educational paths, including those with graduate degrees since we know that the average age of students graduating from masters and doctoral programs was between age 30 and 35 in 2005/2006 (Bayard and Greenlee 2009; King, Eisl-Culkin and Desjardins 2008).

Also, having data at later ages would allow for analyses of members of this cohort who have returned to school for re-training after being in the workplace for several years. For example, we know from recent data from the Access and Support to Education and Training Survey (ASETS) that almost 50% of Canadians age 35 to 44 were in some type of education or training program in 2008 (Knighton, Hujaleh, Iacampo and Werkneh 2009) These individuals who are in their 30s or older who are in training or an education program are an important group for policy purposes since the evidence suggests many Canadians are taking the opportunity (voluntarily or involuntarily, due to the economic downturn) to return to the education system and re-tool their skills (Dowsett 2009; La Rose 2009).

Another natural extension of the current paper would be to loosen the restriction of 'highest level of education achieved' and instead focus upon all possible educational pathways. Re-focussing the analysis on this aspect would allow for the examination of pathways such as being enrolled in university after having completed a college diploma. Similarly, some youth may leave the university system to gain more applied job-ready training from colleges and trade schools. The current paper cannot assess this path given the current definition, which is based on highest level of education attained, which typically is defined as university completion.

Last, in the current paper, respondents were defined as taking time off after high school if they did not start a post-secondary program within four months of completing high school. However, this may be too short a time frame to assess whether there are any labour market costs or benefits associated with staying out of school between high school and the post-secondary system. There is sufficient variability in this dataset to undertake a more thorough examination of this phenomenon, since preliminary descriptive analysis revealed that close to 2000 YITS respondents (or about 20%) delayed going on to post-secondary studies by 5 to 15 months, while close to 1500 (or about 15%) delayed the start of their first post-secondary program by 16 months or more. Future work should take a closer look at labour market differences among those who go directly, those who go within one year and those who take longer than one year. Only then could we truly assess the impact of taking a 'gap year' on labour market outcomes.

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Endnotes

1. Approximate average of 14.59% for Non-gappers-University(+) and 9.38% for Gappers-University(+) is 11.99%.
2. Four months is used as the cut-off in determining whether a respondent delayed entering a post-secondary education program because a typical direct pathway between high school and start of post-secondary education is in the autumn following high school graduation in the spring, or about 4 months.
3. Unfortunately due to small sample size, trade certificates (registered apprenticeship programs) had to be combined with other types of diplomas such as professional licenses for accounting, banking and insurance, as well as certificates from private business schools, and attestation of vocational specialization. As a result, the independent impact that having a trade certificate has on early labour market outcomes cannot be assessed.
4. A pathway for Gappers who obtained a college diploma prior to a university degree had to be combined within the Gapper-University path due to small sample size.
5. This pathway is mostly concentrated in Quebec because of CEGEP. In some additional analyses (not shown), over 70% of Non-gapper-College-University pathway went to high school in Quebec.
6. The geometric mean is used because the earnings measures have been logged; interpretation is the same as with the more standard arithmetic mean.
7. Calculated by taking the average of all pathways leading to a post-secondary education degree or diploma, regardless of gap, and then comparing that to the average of the two pathways of post-secondary education Leavers.
8. All results presented in Tables 5.1 and 5.2 make use of standard errors derived from re-sampling each model 1000 times using the provided bootstrap weights (Statistics Canada 2003). In all analyses, the statistical program Stata Version 10.1is used (StataCorp 2008).
9. Interpreting odds ratios can often be confusing. Refer to Long (1997) for an explanation and correct interpretation.
10. 1-0.4421
11. 1-0.3509
12. The research on effects of children has almost exclusively been confined to women however. (1-0.5064)
13. The exception was the Non-gapper-College-University pathway which stayed about the same over time.
14. This counterintuitive finding is likely due to the composition of the analytical sample. As shown in Table 2.1, the sample selected for analysis has a lower education level than the average YITS sample, and additional analysis demonstrated that the foreign born with lower levels of education have higher employment rates than the Canadian born, at Time 2. As a result, we may be more likely to observe higher employment rates among the foreign born at Time 2 simply because the Time 2 sample has, on average, a lower level of education. These alternative models are available upon request.
15. Calculated as follows: 1-0.6914; 1-0.2635; 1-0.4981, respectively.
16. exp(-0.4455) – 1 = -0.3595
17. exp(-0.4582) – 1 = -0.3676; exp(-0.3285) – 1 = -0.2800
18. exp(-0.2567) – 1 = -0.2264 or exp(-0.2371) – 1 = -0.2111
19. exp(-0.3969) – 1 = -0.3276.
20. exp(-0.1191) – 1 = -0.1123
21. exp(-0.1114) – 1 = -0.1054

22. exp(0.1222) – 1 = 0.1300
23. exp(-0.0807) – 1 = -0.0775
24. exp(0.2503) – 1 = 0.2844
25. exp(-0.1506) – 1 = -0.1398
26. exp(-0.1785) – 1 = -0.1635; exp(-0.2483) - 1 = -0.2199
27. This includes both Gapper and Non-gapper university paths, and also the Non-gapper-College-University path.
28. This is not to say that this group is doing poorly over time; in real terms their wages increased significantly over the time period. The current result is in relation to the university educated only and should not be extrapolated beyond this.
29. Hango and de Broucker (2007) also found no differences between high school leavers and those who eventually returned to complete high school. Definitional differences between that paper and this one complicate direct comparisons, since the current paper was able to isolate two separate 2nd chance groups depending on eventual post-secondary education attendance. The earlier analysis by Hango and de Broucker was unable to make this separation since the YITS respondents were too young and too few had left full-time school.
30. Rumberger and Lamb (2003) however did not assess labour market outcomes for as long a time period as the current study.
31. See Statistics Canada and the Council of Ministers of Education (2007). *Education Indicators in Canada: Report of the Pan-Canadian Education Indicators Program.* Catalogue Number 81-582-XIE. Ottawa. Chart E.3.5. Average earnings/employment income, by age group and educational attainment, Canada, 2005. Updated December 16, 2008.

Culture, Tourism and the Centre for Education Statistics

Research Papers

Cumulative index

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The **Culture Statistics Program** creates and disseminates timely and comprehensive information on the culture sector in Canada. The program manages a dozen regular census surveys and databanks to produce data that support policy decision and program management requirements. Issues include the economic impact of culture, the consumption of culture goods and services, government, personal and corporate spending on culture, the culture labour market, and international trade of culture goods and services. Analysis is also published in *Focus on Culture* (87-004-XIE, free, http://www.statcan.ca/bsolc/english/bsolc?catno=87-004-X).

The **Tourism Statistics Program** provides information on domestic and international tourism. The program covers the Canadian Travel Survey and the International Travel Survey. Together, these surveys shed light on the volume and characteristics of trips and travellers to, from and within Canada.

The **Centre for Education Statistics** develops and delivers a comprehensive program of pan-Canadian education statistics and analysis in order to support policy decisions and program management, and to ensure that accurate and relevant information concerning education is available to the Canadian public and to other educational stakeholders. The Centre conducts fifteen institutional and over ten household education surveys. Analysis is also published in *Education Matters* (81-004-XIE, free, http://www.statcan.ca/bsolc/english/bsolc?catno=81-004-X), and in the *Analytical Studies Branch research paper series* (11F0019MIE, free, http://www.statcan.ca/bsolc/english/bsolc?catno=11F0019M).

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